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IS 4830 (1979): Ammonium Phosphate Sulphate, Granular [FAD
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IS : 4830 - 1979
(Superseding IS : 5407 - 1969)

Indian Standard
SPECIFICATION FOR
AMMONIUM PHOSPHATE SULPHATE,
GRANULAR
(*First Revision*)

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**— AMENDMENT NO. 1 DECEMBER 2000
TO
IS 4830 :1979 SPECIFICATION FOR AMMONIUM
PHOSPHATE SULPHATE, GRANULAR**

(First Revision)

(Page 4, clause 3.5) — Insert the following clause after 3.5:

'3.6 Tolerance — The tolerance limit as indicated shall be applicable:

i) Tolerance for the combined nutrient content, *Max 2 percent of total*;

ii) <i>Nutrient level</i> (percent by mass)	<i>Tolerance</i>
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15.0 or less	0.5 unit
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16.0 to 20.0	0.6 unit'
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[Page 5, Table 1, Sl No. (v), col 6]— Substitute '8.5' for '8.0'.

(PCD 20)

AMENDMENT NO. 2 MAY 2012
TO
IS 4830 : 1979 SPECIFICATION FOR AMMONIUM
PHOSPHATE SULPHATE, GRANULAR

(First Revision)

[Page 5, clause 4.3(g)] — Substitute ‘Gross and net quantity in kg.’ for
‘Gross and net mass in kg.’.

(FAD 7)

Reprography Unit, BIS, New Delhi, India

Indian Standard

**SPECIFICATION FOR
AMMONIUM PHOSPHATE SULPHATE,
GRANULAR**

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 18 January 1979, after the draft finalized by the Fertilizers Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 Two specifications for ammonium phosphate sulphate were published to cover the 16-20-0 Grade (IS : 4830-1968*) and 19.5-19.5-0 Grade (IS : 5407-1969†). The Sectional Committee responsible for the preparation of these standards has decided to amalgamate them and also to cover two more grades, namely, 20-20-0 and 18-9-0. This standard is the amalgamated revision of IS : 4830-1968 and IS : 5407-1969. With the publication of this amalgamated revision, IS : 5407-1969 is being withdrawn.

0.3 In the preparation of this standard, consideration has been given to the need for maintaining co-ordination with the specification of the Fertilizer (Control) Order, 1957 and the Essential Commodities Act, 1955 of Government of India. However, this standard is subject to the provisions imposed under this Order wherever applicable.

0.4 For particle size, the use of IS Sieves conforming to IS : 460-1962‡ is prescribed. Where IS Sieves are not available, other standard sieves as judged from aperture size may be used.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960§. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Specification for ammonium phosphate sulphate (16-20-0).

†Specification for ammonium phosphate sulphate, granular (19.5-19.5-0).

‡Specification for test sieves (revised).

§Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for ammonium phosphate sulphate, granular.

2. GRADES

2.1 There shall be four grades of the material, depending on the content(s) of nitrogen, phosphorus and potash (N-P-K), namely:

- a) *Grade 16-20-0,*
- b) *Grade 19.5-19.5-0,*
- c) *Grade 20-20-0, and*
- d) *Grade 18-9-0.*

3. REQUIREMENTS

3.1 Description — The material shall be in the form of free-flowing granules.

3.2 Particle Size — The particle size of the material shall be such that 90 percent of the material lies between 4-mm IS Sieve and 1-mm IS Sieve, and not more than 5 percent by mass shall pass through 1-mm IS Sieve.

3.3 Resistance to Breakdown of Granules — A single granule of the material taken from the size range 2.8 mm to 3.35 mm shall resist a load of 1.0 kg, minimum, when tested as prescribed in Appendix A.

3.4 Lump Formation — The material shall pass the test as prescribed in Appendix A.

3.5 The material shall also comply with the requirements given in Table 1.

4. PACKING AND MARKING

4.1 Packing — It is essential that the packing should be capable of providing adequate protection to the contents from absorption of moisture by the use of inner plastics liner. Further the packing should be physically strong enough to withstand the normal stresses of handling in stacking, transport and storage.

4.2 The material shall be packed in 50-kg packings or as agreed to between the purchaser and the supplier. Each package shall be securely closed.

**TABLE 1 REQUIREMENTS FOR AMMONIUM PHOSPHATE
SULPHATE, GRANULAR**

(Clause 3.5)

SL No.	CHARACTERISTIC	REQUIREMENT FOR GRADE				METHOD OF TEST, REF TO PART AND CL NO. IN IS : 6092-1971*
		16-20-0	19.5- 19.5-0	20-20-0	18-9-0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Moisture, percent by mass, <i>Max</i>	1.0	1.0	1.0	1.0	5.1 of Part VI
ii)	Ammoniacal nitrogen, percent by mass, <i>Min</i>	16.0	19.5	18.0	18.0	12 of Part II
iii)	Urea nitrogen, percent by mass, <i>Max</i>	—	—	2.0	—	15 of Part II
iv)	Neutral ammonium citrate soluble phosphate (as P_2O_5), percent by mass, <i>Min</i>	20.0	19.5	20.0	9.0	9 of Part III
v)	Water soluble phosphate (as P_2O_5), percent by mass, <i>Min</i>	19.5	17.5	17.0	8.0	7 of Part III

*Methods of sampling and tests for fertilizers:

Part II Determination of nitrogen

Part III Determination of phosphorus

Part VI Determination of impurities

4.3 Marking — Each package shall bear legibly and indelibly the following information:

- Name of the fertilizer;
- Name of the manufacturer and his trade mark, if any;
- Ammoniacal nitrogen, percent by mass;
- Urea nitrogen, percent by mass;
- Neutral ammonium citrate soluble phosphate (as P_2O_5), percent by mass;
- Water soluble phosphate (as P_2O_5), percent by mass; and
- Gross and net mass in kg.

4.3.1 The packages may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. HANDLING AND STORAGE

5.1 Factors to be borne in view in the handling and storage of the material shall be as prescribed in IS : 5985-1971*.

6. SAMPLING

6.1 Representative samples of the material shall be drawn as prescribed in IS : 6092 (Part I)-1971†.

6.2 **Number of Tests** — Tests for all the requirements given under 3 shall be conducted on the composite test sample.

6.3 **Criteria for Conformity** — For declaring the conformity of the lot to the requirements of this specification, the test results on the composite sample shall satisfy all the requirements specified in 3.

A P P E N D I X A

(*Clauses 3.3 and 3.4*)

METHODS OF TEST FOR AMMONIUM PHOSPHATE SULPHATE, GRANULAR

A-1. DETERMINATION OF RESISTANCE TO BREAKDOWN OF GRANULES

A-1.0 General — Two methods are described here. The methods are used to determine comparative hardness of granules and applicable to granulated or pelleted forms of solid fertilizers. Any of the two methods may be used.

A-1.1 Method A

A-1.1.1 Apparatus

A-1.1.1.1 *Hardness tester* — See Fig. 1.

A-1.1.2 Procedure

A-1.1.2.1 Collect a portion of the sample lying in the size range 2 80 mm and 3 35 mm. From the portion obtained pick out at random 25 granules.

A-1.1.2.2 Test each granule successively. Place each granule under the ratchet and slowly screw it down until the particle crushes. Note the crush point on the scale indicator and record the load required to crush it.

*Code of practice for handling and storage of bagged fertilizers.

†Methods of sampling and test for fertilizers: Part I Sampling.

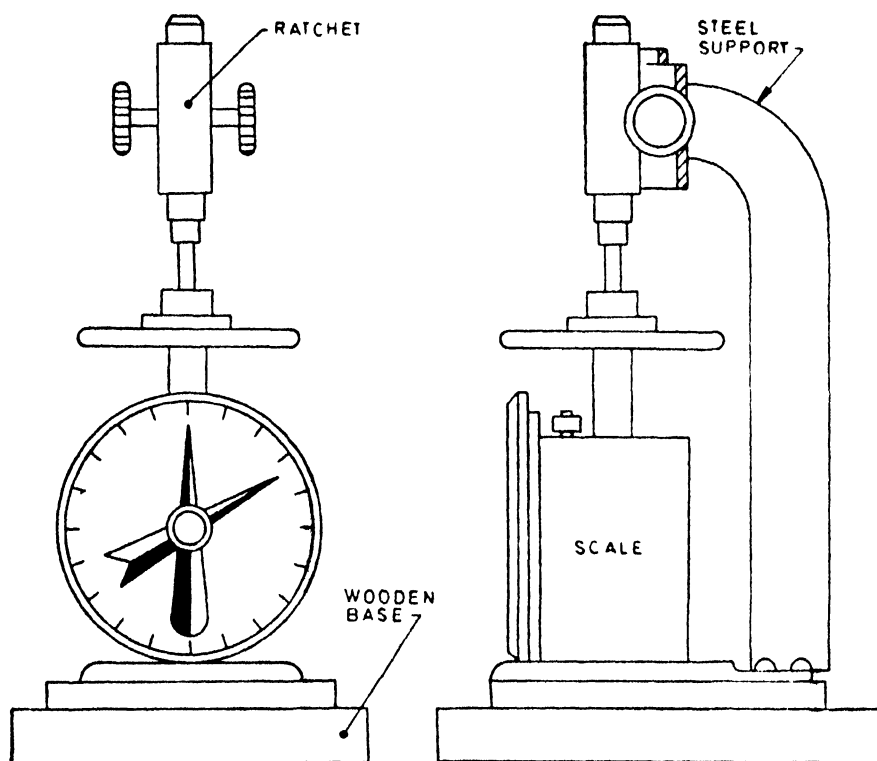
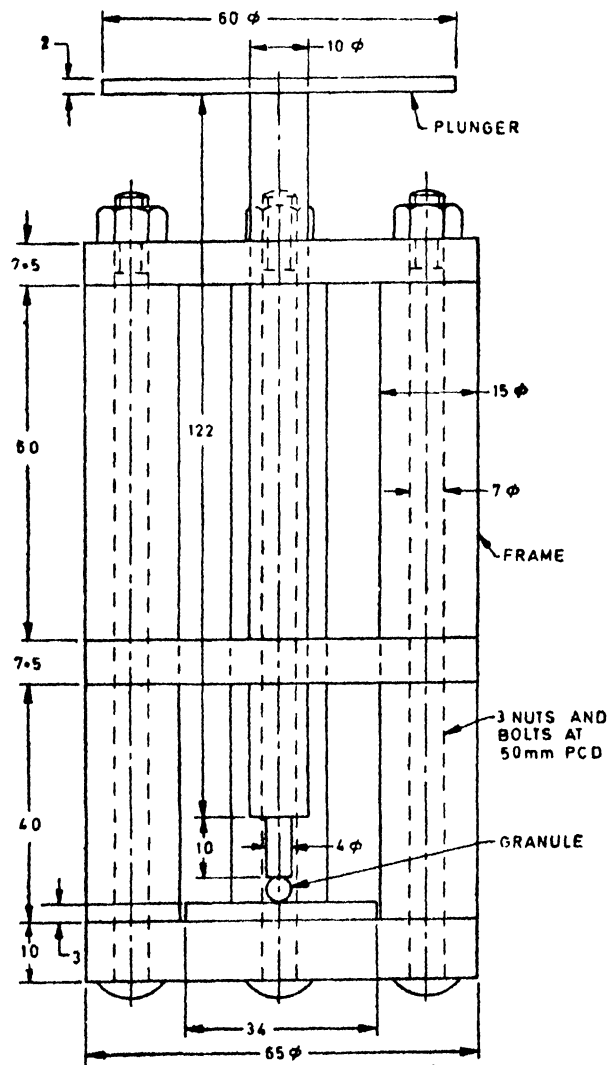


FIG. 1 HARDNESS TESTER, METHOD A

A-1.1.3 Calculation — Calculate in kg the mean of the 25 observations and report the results.

A-1.2 Method B

A-1.2.1 Apparatus — The apparatus, made of mild steel is shown in Fig. 2. It consists of two parts, namely a frame and a plunger. The frame is made of three circular plates and three rods fitted with nut and bolt. These rods are fitted vertically on the base plate and the other two plates are fixed tightly in position. Circular holes are made at the centre in these two plates as shown in Fig. 2 through which the plunger rod can pass through smoothly. The plunger weighing 150 g consists of a circular plate at the top (for keeping additional mass) and a narrow stem 'of diameter 4 mm' at the base which can rest either on the base plate or on the fertilizer granule.



All dimensions in millimetres.

FIG. 2 HARDNESS TESTER, METHOD B

A-1.2.2 Procedure

A-1.2.2.1 Collect a portion of the sample lying in the size range 2·80 mm to 3·35 mm. From the portion obtained pick out at random 25 granules.

A-1.2.2.2 Test each granule successively. Place each granule at the centre of the base plate and keep the stem of the plunger just on its top. Put additional mass on the top of the plunger incrementally and note the total mass of the plunger itself plus the additional mass at which the granule crushes.

A-1.2.3 Calculation — Calculate in kg the mean of the 25 observations and report the result.

A-2. TEST FOR LUMP FORMATION

A-2.1 Procedure — Store one 50-kg packing of the material under a mass equivalent to twelve 50-kg sample bags of the material for 7 days. Then drop the sample bag from a height of 1·5 metres on to hard concrete floor. Empty out the contents of the bag and determine the quantity of the material larger than 12 mm size with the help of a standard sieve.

A-2.2 The material shall be taken to have passed the test if not more than 5 percent of the material is larger than 12 mm in size.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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